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## 8.0 PERSONS AND AGENCIES CONTACTED

Table 19 shows the Federal, State, and local agencies; American Indian tribes; and interest groups contacted for the CREP PEA.

Table 19. CREP PEA consultation.

Name	Title	Agency
Bales, Sara	Regional Wildlife Biologist	Pheasants Forever and Quail Forever, Oklahoma Chapters
Birdwell, James	President	Oklahoma Cattlemen's Association
Brabander, Jerry	Field Supervisor	U.S. Fish and Wildlife Service
Brooks, Robert L.	State Archaeologist	Oklahoma Archeological Survey
Brown, Billie	Conservation Organizer	Sierra Club, Oklahoma Chapter
Dunbar, Damon	Environmental Director	Cheyenne-Arapaho Tribes
Hatfield, Suzette	Coordinator	Oklahoma Family Farm Alliance
Heisch, Melvena	Deputy State Historic Preservation Officer	Oklahoma State Historic Preservation Office
Horne, James E.	President	The Kerr Center for Sustainable Agriculture
Johantobers, Troy	Director of Environmental Programs	Wichita and Affiliated Tribes
Jones, Jeanne C.	President	The Wildlife Society, Southeast Section
Kennington, John	President	Tulsa Audubon Society
Kisling, Keith	Chairman	Oklahoma Wheat Commission
Kouplen, Steve	President of State Board of Directors	Oklahoma Farm Bureau
Ludgate, Sandy	Director of Environmental Programs	Caddo Nation
McDaniels, Andy	Executive Director	Oklahoma Wildlife Federation
Parrish, D.J.	Director of Agricultural Environmental Management Services	Oklahoma Department of Agriculture, Food, and Forestry
Pruett, Jay	Director of Conservation	The Nature Conservancy, Oklahoma Chapter
Quay, Steve	State Chairman	Oklahoma Ducks Unlimited
Smith, Chadwick 'Cornassel'	Principal Chief	Cherokee Nation
Vogele, Louis	Planning, Environmental, and Regulatory Division	U.S. Army Corps of Engineers, Tulsa District
Wanger, Rod	Conservation Program Specialist	Farm Service Agency, Oklahoma State Office
Wasinger, Jennifer	President	Oklahoma Clean Lakes and Watersheds Association
Wulf, Ray L.	President	Oklahoma Farmer's Union

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## 9.0 GLOSSARY

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**Agricultural Pollution**—Wastes, emissions, and discharges arising from farming activities. Causes include runoff and leaching of pesticides and fertilizers; pesticide drift and volatilization; erosion and dust from cultivation; and improper disposal of animal manure and carcasses. Some agricultural pollution is point source (e.g., large feedlots), but much is non-point source, meaning that it derives from dispersed origins.

**Algae Bloom**—Rapid and flourishing growth of algae in and on a body of water.

**Aquifer**—An underground formation capable of storing and yielding significant quantities of water; usually composed of sand, gravel, or permeable rock.

**Carbon Sequestration**—The net removal or fixation of carbon dioxide (CO<sub>2</sub>) from the atmosphere or in a carbon sink into long-lived pools of carbon through biological or physical processes. These pools can be living, aboveground biomass (e.g., trees), products with a long, useful life created from biomass (e.g., lumber), living biomass in soils (e.g., roots and microorganisms), or recalcitrant organic and inorganic carbon in soils and deeper subsurface environments.

**Coliform**—Bacteria common to the intestinal tract of warm-blooded animals, including humans.

**Conservation**—The management of human and natural resources to provide maximum benefits over a sustained period of time. Conservation practices focus on conserving soil, water, energy, and biological resources.

**Conservation Easement**—Acquisition of rights and interest to a property to protect identified conservation or resource values using a reserved interest deed.

**Conservation Practice**—Any technique or measure used to protect soil and water resources for which standards and specifications for installation, operation, or maintenance have been developed.

**Cost Sharing**—Payments to producers to cover a specified portion of the cost of installing, implementing, or maintaining a conservation practice.

**Cropland**—A land use/land cover category that includes five components: cropland harvested, crop failure, cultivated summer fallow, cropland used only for pasture, and idle cropland.

**Dissolved Oxygen**—Amount of free oxygen found in water; most commonly used measurement of water quality.

**Easement**—A landowner sells or surrenders the right to develop a portion of the property, usually in return for a payment or some other benefit.

**Ecosystem**—A level of organization within the living world that includes both the total array of biological organisms present in a defined area and the chemical/physical factors that influence the plants and animals in it; all biological and non-biological variables within a defined area.

**Endangered Species**—A species that is threatened with extinction throughout all or a significant portion of its range.

**Erosion**—The removal and loss of soil by the action of water, ice, gravity, or wind.

**Ethnicity**—A person either of Hispanic or Latino origin and any race, or not of Hispanic or Latino origin and any race.

**Eutrophication**—A process where more organic matter is produced than existing biological oxidization processes can consume.

**Extreme Poverty Area**—An area in which at least 40 percent of the residents are below the poverty threshold.

**Farm Income**—The earnings of a farming operation over a given period of time, measured by several factors: 1) Gross cash income is the sum of all receipts from the sale of crops, livestock, and farm-related goods and services, as well as all forms of direct payments from the government. 2) Gross farm income is the same as gross cash income with the addition of non-money income, such as the value of home consumption of self-produced food and the imputed gross rental value of farm dwellings. 3) Net cash income is gross cash income less all cash expenses such as for feed, seed, fertilizer, property taxes, interest on debt, wages to hired labor, contract labor and rent to non-operator landlords. 4) Net farm income is gross farm income less cash expenses and non-cash expenses, such as capital consumption, perquisites to hired labor, and farm household expenses. 5) Net farm income is a longer-term measure of the ability of the farm to survive as a viable income-earning business. 6) Net cash income is a shorter-term measure of cash flow.

**Filter Strip**—An area of vegetation, generally narrow and long, that slows the rate of runoff, allowing sediments, organic matter, and other pollutants that are being conveyed by the water to be removed.

**Floodplain**—The lowland that borders a stream or river and is found outside of the floodway. It is usually dry, but subject to flooding.

**Flyway**—A general term used to describe common migrating patterns among different bird species, based on definite geographic regions.

**Groundwater**—Water in the porous rocks and soils of the Earth's crust; a large proportion of the total supply of fresh water.

**Hispanic or Latino Origin**—A person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin, regardless of race.

**Hydrology**—The study of the distribution, movement, and chemical makeup of surface and ground waters.

**Introduced Species**—Species that have evolved elsewhere and have been transported and purposely or accidentally disseminated by humans. Other terms used to describe these species are alien, exotic, non-native, and non-indigenous.

**Invasive Species**—A species that is non-native to the ecosystem under consideration, and whose introduction causes or is likely to cause harm to the economy, environmental, or human health.

**Low-income**—Individuals or households falling below the poverty threshold.

**Median Household Income**—The income level which divides the income distribution of all of the households in a given area into two equal groups; half of the households having incomes above the median, and half having incomes below the median.

**Minority population**—A population composed of a minority group and exceeding 50 percent of the population in an area or the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population.

**Mitigation**—A method or action to reduce or eliminate adverse impacts.

**Native Grasses**—Various regional and national grasses that were original to particular areas of the U.S.; regional with regards to soils, acidity or alkalinity, climate, diseases, and symbiotic coexistence with other plants in the surrounding area.

**Neotropical Migrants**—Bird species that annually migrate to the tropics during the northern winter months.

**Nitrate**—The nitrogen ion,  $\text{NO}_3^-$ , is derived from nitric acid and is an important source of nitrogen in fertilizers. Nitrate pollution of drinking water, shallow wells being particularly vulnerable, is of concern because infants are especially sensitive.

**Nutrient**—Usually nitrogen or phosphorus. Excessive inputs of a nutrient can cause of eutrophication of surface waters and stimulate algal growth. Sources of nutrients include runoff from fields and pastures, discharges from septic tanks and feedlots, and emissions from combustion.

**Ozone**—A highly reactive molecule composed of three oxygen atoms. Environmentally, ozone is important in two completely separate contexts—one, as a naturally occurring screen of harmful radiation in the outer atmosphere (i.e., stratospheric ozone), and two, as a component of polluting smog formed from emissions resulting from human activities (i.e., urban smog). In the stratosphere 7 to 10 miles above the Earth, naturally occurring ozone acts to shield the Earth from harmful radiation.

**Particulate Matter**—Air pollutants, including dust, soot, dirt, smoke, and liquid droplets directly emitted into the air by sources such as factories, power plants, cars, construction activity, fires, and natural windblown dust.

**Pastureland**—A land use/land cover category of land managed primarily for the production of introduced forage plants for livestock grazing. For the NRI, includes land that has a vegetative cover of grasses, legumes, and/or forbs, regardless of whether or not it is being grazed by livestock.

**Poverty area**—An area in which at least 20 percent of the residents are below the poverty threshold.

**Poverty Thresholds**—For statistical purposes (e.g., counting the poor population), the U.S. Census Bureau uses a set of annual income levels (poverty thresholds) that represent a Federal Government estimate of the point below which a household of a given size has cash income insufficient to meet minimal food and other basic needs. They were developed in the 1960s, based largely on estimates of the minimal cost of food needs, to measure changes in the poor population. The thresholds differ by household size and are adjusted annually for overall inflation.

**Race**—Classification which includes White, Black or African American, American Indian or Alaskan Native, Asian, and Native Hawaiian or Other Pacific Islander.

**Rangeland**—A land cover/land use category on which the climax or potential plant cover is composed principally of native grasses, grass-like plants, forbs, or shrubs suitable for grazing and browsing, and introduced forage species that are managed like rangeland. For the NRI, grasslands, savannas, many wetlands, some deserts, and tundra were considered to be rangeland.

**Riparian Areas**—Lands adjacent to rivers and streams that are influenced by flooding. They are considered transition zones between the aquatic and terrestrial ecosystem that are connected by direct land-water interaction.

**Runoff**—Non-infiltrating water entering a stream or other conveyance channel shortly after a rainfall.

**Sediment**—Any finely divided organic and/or mineral matter derived from rock or biological sources that have been transported and deposited by water or air.

**Sedimentation**—The process of depositing sediment from suspension in water.

**Threatened Species**—A species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

**Total Maximum Daily Load (TMDL)**—A TMDL identifies the amount of a specific pollutant or property of a pollutant, from a point source (“end of the pipe”), a non-point source (from runoff), and natural background sources, including a margin of safety, that may be discharged to a water body and still ensure that the water body attains water quality standards.

**Watershed**—The land across and under which water flows on its way to a stream, river, lake, or other water body; the surface drainage area above a specified point on a stream.

**Wetlands**—Areas that are inundated or saturated with surface or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil, including swamps, marshes, bogs, and other similar areas.

**Woodland**—A land cover/land use category that includes wooded pastureland and wooded non-pastureland.



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**APPENDIX A  
OKLAHOMA CONSERVATION RESERVE ENHANCEMENT PROGRAM  
AGREEMENT**

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## **APPENDIX A—OKLAHOMA CONSERVATION RESERVE ENHANCEMENT PROGRAM AGREEMENT**

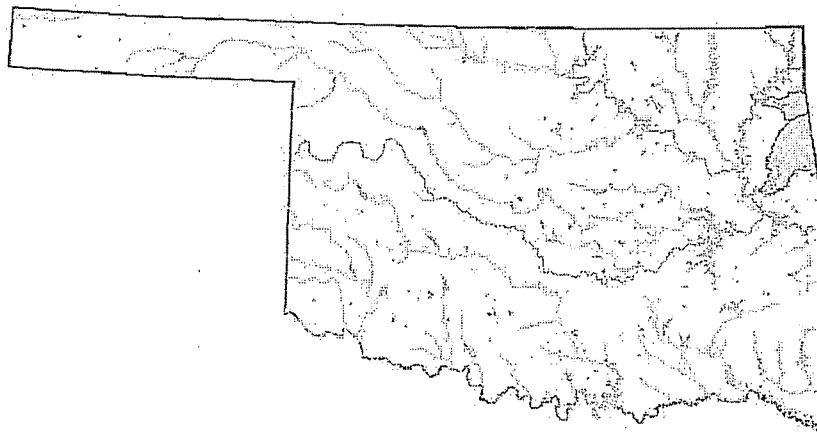
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The following pages of this appendix contain scanned images of the *Conservation Reserve Enhancement Program (CREP) Proposal for Spavinaw Lake and Illinois River/Lake Tenkiller Watersheds*. This draft agreement, dated January 2006, is between the U.S. Department of Agriculture Commodity Credit Corporation and the State of Oklahoma.

**Conservation Reserve Enhancement Program (CREP)  
Proposal for Spavinaw Lake and Illinois River/Lake  
Tenkiller Watersheds**

**State of Oklahoma**

**Cherokee, Delaware, Sequoyah, Adair, and Mayes Counties**



Draft Oklahoma CREP Proposal- Illinois River/Lake Tenkiller and Spavinaw Lake Watersheds- 01/06

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## Section 1- Abstract

### Project Area Description

Oklahoma has chosen two high priority watersheds in the eastern portion of the State as the focus of a CREP program. These watersheds were chosen because they are high priorities for the State, but also because the water quality problems and sources of contaminants are representative of their regions and of problems that can be significantly addressed with protection of riparian areas.



*Illinois River, Cherokee County, Oklahoma.*

The Spavinaw Lake and Lake Tenkiller (Illinois River) Watersheds lie within the Ozark Plateau. Land is level to highly dissected and is underlain by cherty limestone. Karst features and clear, spring-fed perennial streams are common. These clear or once-clear rivers and lakes are highly valued by the citizens of Oklahoma for recreation and water supply. The reservoirs in particular are important water supplies for much of eastern Oklahoma including the greater Tulsa metropolitan area. A large recreational industry exists on the Illinois River and its main tributaries, the Baron Fork River and Flint Creek.

This project aims to restore stable riparian vegetation and riparian buffers to these systems and to reduce livestock access to floodplains. This will result in less overland flow of pathogens (fecal indicator bacteria) and phosphorus to the streams and will stabilize the stream banks, resulting in less streambank erosion. This, in turn, will result in better water quality, lower maintenance requirements to the road and highway system, and will help to preserve existing floodplain pasture.

The watersheds of Spavinaw and Tenkiller Lakes constitute a major poultry growing and cattle producing area. Poultry litter has been applied to the nutrient poor, thin, cherty soils of the area and they now grow luxuriant grass and support an important cattle industry. Excessive buildup of phosphorus over the years has polluted the receiving waterbodies to the point that they are now considered impaired by nutrients. The Illinois River is impaired by phosphorus and many of the area streams are impaired by pathogenic bacteria. Downstream reservoirs are impaired by phosphorus (high chlorophyll-a concentrations) and low dissolved oxygen levels, primarily due to excess nutrients.

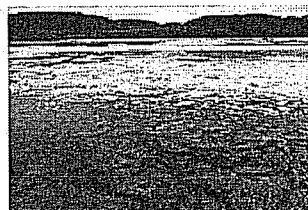
This program will attempt to protect 4,700 – 19,035 acres of riparian area in the two watersheds (depending on available non-federal match), with a total riparian area of approximately 118,000 acres (2,060 square miles of total watershed area). Practices to be used include CP21 and CP22 with modifications.

Total project cost is estimated between \$15,227,500 and \$54,619,702 of which approximately 20% will be borne by non-federal partners.

## Section 2 – Existing Conditions and Impacts to be Addressed

### Existing Conditions

Lake Spavinaw and upstream Lake Eucha provide approximately 50% of the drinking water for the greater Tulsa Metropolitan area and were constructed and operated for that purpose. Water quality has been steadily deteriorating as algal growth has increased over the years. The Tulsa Metropolitan Utility Authority has recorded increasing numbers of taste and odor complaints with their finished water and concomitant increased treatment costs. They recently sued several of the large poultry integrator companies who contract with the poultry growers of the watershed. The suit was settled with the result that there is now less poultry waste spread in the watershed but the water quality problems persist. Computer modeling highlights the need for riparian buffers to fully address this problem.



*Algae bloom on Spavinaw Lake*



Aside from the above-mentioned problems with drinking water produced from this lake, the lake itself does not meet water quality standards because of excess phosphorus in the streams feeding it. Large portions of the lake are now anoxic for much of the summer and taste and odor problems due to blue green algae blooms are now occurring. It is feared that fish kills may follow and that toxic algae blooms could be a possibility. Aside from the loss of the fishing resource and additional problems for the water treatment plant that would occur if this were to happen, large fish kills would be detrimental to the area in general. Agricultural producers in the area have already been subjected to significant regulations relating to the use of poultry litter and nutrient management and further water quality degradation will likely result in increased regulation on the industry. Agriculture is a very important industry to the State and as such, it is critical that we take steps to reduce potential impacts from agricultural practices.

Lake Tenkiller is a large multipurpose reservoir operated by the Army Corps of Engineers on the Illinois River. The lake is one of the most popular recreation destinations in the state and there is a sizeable associated tourism industry. The lake was once popular with SCUBA divers, but declining water clarity has dramatically reduced that activity. The lake has recently been classified as impaired due to anoxia that is occurring. The Illinois River and its two major tributaries, Flint Creek and Baron Fork River, are Scenic Rivers, considered by Oklahomans to be among the finest rivers in the state. They support a very large recreational industry in the form of canoeing, rafting, and camping. The Illinois River, Flint Creek and the Baron Fork River are all violating water quality standards for phosphorus and the State Attorney General has recently submitted a notice of intent to sue five poultry integrator companies for their role in polluting these rivers.

Oklahoma has adopted a 0.037 mg/L phosphorus standard for the Illinois and other State Scenic Rivers. Arkansas, in a show of good faith to help meet the standard, agreed to upgrade sewage treatment for the cities of Siloam Springs, Springdale, Fayetteville, Bentonville, and Rogers to meet 1 milligram per liter phosphorus limits. The two states are working cooperatively to develop a joint monitoring strategy and a joint watershed plan for the Scenic River watersheds. As a result of these efforts, point sources in the watershed have been largely addressed; remaining efforts must focus on reduction of nonpoint source pollution.

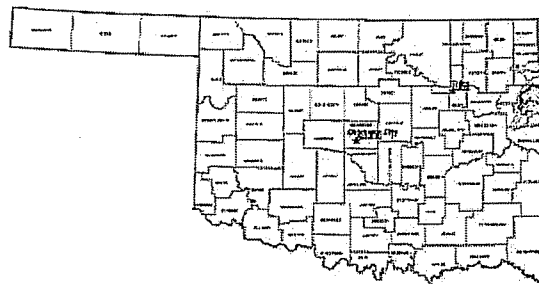
In addition to the phosphorus pollution, the scenic rivers are impaired by pathogenic bacteria, many of which wash into the streams from poultry litter applied to pastures or cow manure deposited on floodplains or in streams. Additional potential sources of bacteria include septic systems and wildlife. The Clean Water Act demands that the state take action to remove this impairment and the state strongly wishes to do so by voluntary means.

The deterioration of water quality in our scenic rivers, major reservoirs and now a lawsuit has polarized our state into agricultural interests versus recreational interests, environmental and drinking water interests. The State of Oklahoma has entered negotiations with the State of Arkansas to avoid another threatened lawsuit that Oklahoma feels it may be forced to file if water quality upstream of the state boundaries doesn't improve. This discord has a negative impact on the State's agricultural industry that could result in irreparable harm. Modeling has shown that with properly functioning riparian buffers in place, we can substantially reduce inputs of pollutants to streams and rivers and ultimately, to the reservoirs. Riparian buffers, coupled with upland nutrient reduction practices and nutrient reduction technology applied to wastewater treatment plants should be able to solve the problem.

#### Map of the Area

The proposed CREP program would focus on riparian area in the Oklahoma portion of two eastern high priority watersheds.

The State believes that demonstrating the efficiency of riparian buffers in these two high priority watersheds is a critical step in reaching our ultimate goal of landowners accepting riparian protection as a standard practice of operation, much like terraces on a sloped field, or septic tanks for a rural residence.



Draft Oklahoma CREP Proposal- Illinois River/Lake Tenkiller and Spavinaw Lake Watersheds- 01/06

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#### Description of Human Activities and Landuses

The Illinois River and its major tributaries are Scenic Rivers that host a significant recreational industry in the form of canoe and raft rentals as well as camping, fishing and swimming. Other than this recreational use, activities and landuses in the Illinois River and Spavinaw watersheds are the same and they can be discussed as one unit.

Hunting is an important activity throughout the upland areas of forest, which are mostly privately owned. Cleared land is almost exclusively devoted to pastures of Bermuda grass and Fescue. Acres of cropland in the watersheds have steadily declined, with most of the cropland converted to pasture. Compared to the 1984 landuse coverages detailed in the following table and maps, currently, there are only a few hundred acres of cropland in the Oklahoma portion of the two watersheds, most of which are in soybeans as well as minor amounts of orchards.

Poultry and cattle production are the base of most of the agricultural economic activity in the area. The two watersheds together produce over 10,000,000 birds/year (2000 Ag. census), and the litter resulting from their production, when applied to land, allows the nutrient poor soils to grow abundant grass for cattle grazing. Oklahoma Department of Agriculture, Food, and Forestry permitting records suggest that the two watersheds have a total of 190 houses with a combined capacity of over 14,000,000 birds/yr. Both beef and dairy cattle are important agricultural products of the area. Approximately 180,000 and 13,000 respectively of beef and dairy cattle are produced annually in the watersheds.

Tahlequah (2000 population: 14,458) is the only urban center in the Oklahoma portion of the Illinois River watershed. Tahlequah is the county seat of Cherokee County, Oklahoma. Jay, Oklahoma, situated on the ridgeline of the Spavinaw Lake Watershed, is the county seat of Delaware County and has a population of 7,332 (2000 census).

Further illustration of landuse distribution in the watersheds can be seen in the following landuse table and maps.

#### Landuse Summaries in Proposed CREP Watersheds (1984 USGS Land Use Data).

Land Use	Illinois River- OK portion (acres)	Eucha/Spavinaw – OK portion (acres)
Bare rock / Sand / Clay	266	160
Cropland	11,022	8,140
Forest	324,758	101,878
Pasture/Range	213,539	57,494
Gravel Pits	34	0
Roads	1,966	142
Urban	6,099	298
Water/Wetlands	18,346	5,257
Total	576,030	173,369

